

WHAT IS CLAIMED IS:

1. A camera device for imaging a plurality of directions in a visual field simultaneously, the device comprising:

an image pickup unit having a single image pickup
5 device and an image pickup lens disposed in front of the image pickup device;

an optical unit disposed in front of the image pickup unit and configured to guide incident light from a plurality of directions in the visual field to the image
10 pickup unit; and

a supporting unit for supporting the optical unit, wherein the supporting unit comprises a tapered supporting member having a thickness gradually reduced toward the image pickup unit.

15 2. The camera device as claimed in claim 1, wherein the optical unit comprises a prism formed substantially in a triangle prism including a rear prism surface and a pair of side prism surfaces, the rear prism surface facing the image pickup lens, and one prism side surface facing a side
20 visual field of the image pickup unit, the prism allowing an incident light entered through the one prism side surface to be reflected twice internally between the one prism side surface and the other prism side surface and then to output through the prism rear surface, and guiding
25 the light beam toward the image pickup lens.

3. The camera device as claimed in claim 2, wherein the prism comprises a pair of left and right prisms disposed symmetrically on the front side of the image pickup unit, and

5 wherein the left prism is arranged that a left prism side thereof faces toward the left visual field and the right prism is arranged that a right prism side thereof faces the right visual field.

4. The camera device as claimed in claim 2, wherein the tapered supporting member is disposed between an image pickup range of an image to be picked up with the intermediary of the prism and the image pickup range of an image to be picked up without the intermediary of the prism.

15 5. The camera device as claimed in claim 2, wherein at least part of the ridged portion surrounding the rear surface of the prism has an angular shape formed of surfaces intersecting with each other.

6. The camera device as claimed in claim 1, wherein the supporting unit is configured to support the optical device to be inserted along a direction substantially perpendicular to the optical axis of the image pickup lens, and

25 wherein the tapered supporting member is configured to receive the optical device on the opposite side from

the side on which the optical device is inserted and supports the same.

7. The camera device as claimed in claim 1, wherein the optical unit is disposed so as to cover a part of the image pickup lens, and further comprises a sub-image pickup lens disposed so as to cover other part of the image pickup lens.

8. A vehicle periphery monitoring apparatus comprising:
a camera device mounted on a vehicle and configured to pick up images of a plurality of directions in a visual field simultaneously;

a processing unit configured to process the image picked up by the camera device; and

a display unit installed in a cabin of the vehicle and configured to display the image processed by the processing unit,

wherein the camera device comprises:

an image pickup unit having a single image pickup device and an image pickup lens disposed in front of the image pickup device;

an optical unit disposed in front of the image pickup unit and configured to guide incident light from a plurality of directions in the visual field to the image pickup unit; and

a supporting unit for supporting the optical unit,

wherein the supporting unit comprises a tapered

supporting member having a thickness gradually reduced toward the image pickup unit.

9. The vehicle periphery monitoring apparatus as claimed in claim 8, wherein the optical unit comprises a prism
5 formed substantially in a triangle prism including a rear prism surface and a pair of side prism surfaces, the rear prism surface facing the image pickup lens, and one prism side surface facing a side visual field of the image pickup unit, the prism allowing an incident light entered through
10 the one prism side surface to be reflected twice internally between the one prism side surface and the other prism side surface and then to output through the prism rear surface, and guiding the light beam toward the image pickup lens.

10. The vehicle periphery monitoring apparatus as claimed
15 in claim 9, wherein the prism comprises a pair of left and right prisms disposed symmetrically on the front side of the image pickup unit, and

wherein the left prism is arranged that a left prism side thereof faces toward the left visual field and the
20 right prism is arranged that a right prism side thereof faces the right visual field.

11. The vehicle periphery monitoring apparatus as claimed in claim 9, wherein the tapered supporting member is disposed between an image pickup range of an image to be
25 picked up with the intermediary of the prism and the image

pickup range of an image to be picked up without the intermediary of the prism.

12. The vehicle periphery monitoring apparatus as claimed in claim 9, wherein at least part of the ridged portion
5 surrounding the rear surface of the prism has an angular shape formed of surfaces intersecting with each other.

13. The vehicle periphery monitoring apparatus as claimed in claim 8, wherein the supporting unit is configured to support the optical device to be inserted along a direction
10 substantially perpendicular to the optical axis of the image pickup lens, and

wherein the tapered supporting member is configured to receive the optical device on the opposite side from the side on which the optical device is inserted and
15 supports the same.

14. The vehicle periphery monitoring apparatus as claimed in claim 8, wherein the optical unit is disposed so as to cover a part of the image pickup lens, and further comprises a sub-image pickup lens disposed so as to cover other part
20 of the image pickup lens.